

# PATENT COOPERATION TREATY

12/10/77

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

## PCT

### NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Rule 71.1)

To:

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Date of mailing  
(day/month/year)

13.10.2004

Applicant's or agent's file reference  
SMC 60536/WO

#### IMPORTANT NOTIFICATION

International application No.  
PCT/GB 03/03317

International filing date (day/month/year)  
30.07.2003

Priority date (day/month/year)  
06.08.2002

Applicant  
AVECIA LIMITED et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

#### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later, in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international  
preliminary examining authority:



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# PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SMC 60536/WO	<b>FOR FURTHER ACTION</b>		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/GB 03/03317	International filing date ( <i>day/month/year</i> ) 30.07.2003	Priority date ( <i>day/month/year</i> ) 06.08.2002	
International Patent Classification (IPC) or both national classification and IPC H01L51/40			
Applicant AVECIA LIMITED et al.			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
 

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of    sheets.

3. This report contains indications relating to the following items:
 

I    ☒ Basis of the opinion

II   ☐ Priority

III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability



IV ☐ Lack of unity of invention

V   ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

VI ☐ Certain documents cited

VII ☐ Certain defects in the international application

VIII ☐ Certain observations on the international application

Date of submission of the demand  22.12.2003	Date of completion of this report  13.10.2004
Name and mailing address of the international preliminary examining authority: <div style="margin-left: 20px;">            European Patent Office            D-80298 Munich            Tel. +49 89 2399 - 0 Tx: 523656 epmu d            Fax: +49 89 2399 - 4465         </div>	Authorized Officer  Cockcroft, Y  Telephone No. +49 89 2399-2436 <div style="text-align: right;">  </div>

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/03317

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-24 as originally filed

**Claims, Numbers**

1-35 as originally filed

**Drawings, Sheets**

1/14-14/14 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

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EXAMINATION REPORT**

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-34
	No: Claims	35
Inventive step (IS)	Yes: Claims	1-34
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-35
	No: Claims	

2. Citations and explanations

**see separate sheet**

## **To Point V**

Independent claim 35 is for a device which is obtainable by a method according to any of claims 1-34, however claim 35 does not explicitly contain any device features. The device arising from claim 1 is an organic electronic device which comprises a patterned structure, the structure comprising two or more device layers. Claim 35 has been interpreted in this light. This device must be new and inventive over known devices even if the known devices have been obtained by quite different methods.

The document WO 99/54786 (hereinafter D1) shows a structure of an organic device comprising patterned areas with two or three device layers (see figure 7 and the corresponding text, as well as page 16, line 22 to page 18, line 16 of the description). Claim 35 lacks new subject matter compared to this teaching such that the requirements of Article 33.2 PCT are not met.

The method of claims 1-34 of the application concerns the formation of an organic electronic device using a lift-off ink. A negative image of the required pattern is formed with the ink, device layers are coated onto the substrate plus ink pattern and then the ink is removed via a lift-off process.

None of the documents cited in the International search report show such a method. The closest teaching is that of US-A-6 375 870, wherein a negative pattern is formed via a cylindrical roller, an aluminium layer is deposited over the substrate plus pattern and the pattern with overlying aluminium is then removed. The device here is not organic and the mask is not formed via an ink. There is no incentive for the skilled person to amend the teaching of this document to use an ink since inks are not normally considered for use as masks in lift-off processes.

WO 82/03948 discloses a standard lift-off process wherein a resist is deposited and patterned, device layers are deposited and the resist and overlying device layers are removed using lift-off.

Advanced Materials does mention the use of ink-jet printing to form layers of an organic device but the ink-jet printed layers always remain in the final structure and indeed there is no lift-off mentioned in connection with the ink-jet printing method of device fabrication (see section 4.4 of this document).

IEEE Polytronic 2002 Conference is concerned with organic TFTs and the method

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/GB 03/03317

disclosed therein explicitly avoid lift-off. The method of D1 involves the use of a permanent mask which can be reused and which can be moved over the substrate to achieve multiple depositions at different and/or overlapping areas. Inks are not mentioned in either of these documents.

An inventive step is thus recognised in claims 1-34, as the method therein involves a non-obvious use of patterned inks to achieve high resolution patterns with uniform layer thicknesses and at low cost, without the need for different inks for each layer as is required when using direct printing methods.